CHAPTER III

RESEARCH METHODOLOGY
INTRODUCTION

3.1 INTRODUCTION

This study was undertaken to provide an insight into the changes that were brought into the power sector after the reforms in Gujarat. Prior to the reforms, the power sector in the state was inefficient. Moreover, sufficient studies on the subject were not available. The power sector in the state has undergone tremendous changes in its policy and structure in the post-reforms era but there is still some lacunae in the available literature on power sector reforms. The researcher tries to look into the changes in the power sector in Gujarat and the impact of these reforms on the sector through this study.

The myriad changes that have taken place in one of the most vital infrastructures of the Indian economy i.e. the power sector has compelled the researcher to explore the far-reaching impact of reforms in this sector. With this study, the researcher aims to understand the need for the power sector reforms at the national level, their impact at the state level, the various policies and regulations that have come into effect because of these changes in the power sector. Specifically, the study tries to explore the nature and the scope of the policies, the impact it has had on the functioning, organizational structure and implications at various other levels in a few selected companies in the power sector in Gujarat.
3.2 RESEARCH GAP

Synthesizing and reviewing the literature related to the research objective generated good insight into each of the broad research areas. Although various studies regarding the impact of reforms are available in the literature, studies showing the importance of leadership and its impact on reforms are rare. Moreover, studies focusing especially on the reforms of Gujarat electricity sector are almost nil. Therefore, a need was felt to study the power sector reforms and its implication in Gujarat State.

3.3 RESEARCH DESIGN

Looking to the nature of the study, initially exploratory work was done in the area and later descriptive research design was used for the study. The research design used for the study was 'Exploratory and Descriptive Research design.' The responses were collected from the organizations that had undergone reforms by conducting a survey of all the power companies of Gujarat. As the universe of the study was small (11 companies), it was proposed to survey all of them to have a better understanding of the phenomenon.

Initially, a pilot study of one organization was done to cross check the information needed and the interview guides were prepared to ensure the suitability of the instrument. A questionnaire was prepared and shown to
several people in academic circles and industry for further scrutiny and refinement.

3.4 OBJECTIVE OF THIS STUDY

The study tried to look into following issues:

To examine the nature and scope of the changes in policies pertaining to power sector

1) To identify the implication of these changes on the power Sector companies in Gujarat in the light of reforms

2) To explore problems and issues faced by power sector companies in the light of policy charges.

3) To examine the responses of power sector companies in gearing up to the changing need.

4) To identify strategic issues and future scenario of the power sector in Gujarat

Looking to the above objectives, information was collected through structured questionnaire as well as personal interviews.

3.5 SELECTED VARIABLES FOR THE PRESENT STUDY

For the present study, taking insights from the literature review and deliberate discussions with experts, some variables were considered. An attempt was made to assess impact of reforms on the power sector companies by using variables like:
• Impact of power sector reforms
• Strategic Leadership needed for power sector
• Strategic issues concerning reforms
• Implementation of reforms

3.6 SCALE.

In the present study, the responses derived from the respondents were based on parameters like “strongly agree to strongly disagree”. The relevance of the responses was evaluated on a five point scale as given below:

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>

The questions were asked pertaining to the top level of employees namely Chief executive officers, Presidents, Vice Presidents and other decision makers.

3.6.1 THE QUESTIONNAIRE

The questionnaire was divided into the following sections:

Part first: *It relates to the impact of power sector reforms of the responding organizations. The questions were related to the following points:*
Influence of globalization on power sector reforms
Entry of new players in the sector
Role of central government
Scenario of power sector in post reforms era
Opening of Consumer segments
Generation of financial resources
Leadership qualities to be transformed
Regulatory body (GERC)
Commercial Viability of the changes taking place
Driving forces for reforms in the Electricity Act 2003
Government interference

In this section, respondents were asked to rate on a 5-point Likert scale where A meant “Strongly agree”, B meant “Agree”, C meant “Disagree”, D meant “Uncertain” and E meant “Strongly Disagree”.

Part Second: It relates to the strategic leadership aspects faced by the companies in lieu of the power sector reforms. The questions were related to the following points:

- Background and nature of top leadership in the emerging scenario
- Need for strategic leadership in the competitive power sector
- Leadership and transformation
• Appropriate “change management” by top management

• Benefits for private companies by deployment of strategic leadership at the top

• Benefits of Corporatization of SEB

• Promotion given to captive generation and IPPs

• Improvement in consumer services

• Reduction in T&D losses

• Reduction in Gross Subsidies

• Tariff policies

• Benefits of new schemes like demand side management, Energy audits

In the same part of the question, a separate section was made for judging the leadership qualities that the top management in the power sector should possess. The respondents were asked to rank from 1 to 10 where 1 stood for “the quality that they deemed to be the most desirable”. Similarly 10 stood for “the quality that they deemed to be the least desirable”.

The variable qualities were:

• Knowledge of subject/ knowledge matter

• Non political background

• Non bureaucratic background

• Professional qualifications
• Rich experience in management
• Age factor
• Strategy formulation and implementation
• Rational employer
• Excellent change agent
• Problem solving nature

Part Three of the questionnaire tried to have an analysis upon the implications of the changes brought about in the power sector policies. They were given statements and were asked to rate them from A to C

\[
\begin{array}{|c|c|c|}
\hline
A & \text{Most desirable} & B & \text{Desirable} & C & \text{Undesirable} \\
\hline
\end{array}
\]

The questions were related to the following points:

• Impact on licensing of generation of electricity
• Impact on captive power generation
• Open access for captive power plants
• Choice of consumers to non-discrimination, open access to transmission/distribution
• Stand alone generation/distribution of electricity
• Purchases of power from renewable sources
• Abolition of Single buyer
The fourth part of the questionnaire was meant to find out the strategic issues relating to the changes and the implications brought about by the changes in the present context.

Here, 14 various issues were coined for each of which, the respondents were asked to rate one of the given three choices for the organization and for the power sector. The respondents were given choices as:

<table>
<thead>
<tr>
<th>Great Extent</th>
<th>To some Extent</th>
<th>Not at All</th>
</tr>
</thead>
</table>

The questions tried to seek opinions of respondents in the following areas:

- Change in work culture
- Change in corporate culture
- Change in Regulator
- Change in Business Process
- Change in HR policies
- Existence of new entities for competition
- Focus in business function
- Loss / reduction (if Loss making)
- Restructuring the finance function
- Tariff rationalization
- Loss reduction via theft prevention (if applicable)
- Consumer classification and segmentation
- Strategic enterprise management
The fifth part of questionnaire focused on the extents to which the reforms were implemented. The issues dealt with were:

- Unbundling of SEBs
- Corporatization of new entities
- Focused formation of new companies
- Revamping of HR policies
- Redefining the business functions
- Benchmarks for technical functions
- New vistas for knowledge management via integrated training center

3.6.2 EXPLANATION

Detailed distribution of the questions/statements in the questionnaire

Table 15: Detailed distribution of questions/statements in the Questionnaire

<table>
<thead>
<tr>
<th>Section</th>
<th>Variables</th>
<th>Sub questions / statements</th>
<th>Total Number of questions/statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1</td>
<td>Impact of power sector reforms</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Part 2</td>
<td>Strategic leadership issues</td>
<td>14</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Leadership Qualities</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Part 3</td>
<td>Implications</td>
<td>07</td>
<td>07</td>
</tr>
<tr>
<td>Part 4</td>
<td>Strategic issues</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Part 5</td>
<td>Implementation of reforms</td>
<td>07</td>
<td>07</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>63</td>
</tr>
</tbody>
</table>
3.7 DATA COLLECTION:

Secondary data: The researcher collected information from available books, articles, journals, periodicals, electronic databases and World Wide Web facilities. Information was also collected from special journal of CMIE, Annual Reports, TERI etc. Apart from these, both published and unpublished documents of the organizations to be studied were also used. Libraries of Indian Institute of Management, Ahmedabad; Sardar Patel University, Vallabh Vidyanagar; B. K. School of Business Management, Ahmedabad, ERDA library etc also provided relevant information to the researcher.

Primary data: The primary data was collected by structured questionnaire. Secondly, in-depth personal interviews were conducted with the top level managers using semi-structured questionnaire. The primary data which is used for the analysis consists of 11 organizations.

3.8 SAMPLE FRAME

A sample of 11 companies were taken in the power sector including Generation, Distribution and transmission in Gujarat

Types of Companies

For the purpose of research, the following private sector and public sector companies in Gujarat were included:
1) **Power Generation Companies**

2) **Distribution Companies**
   - Paschim Gujarat Vij Company Limited, Corporate Office: Lexminagar, Nana Mava Main Road, Rajkot - 360004
   - Dakshin Gujarat Vij Company Limited, Corporate Office: Nana Varadha Road, Surat
   - Uttar Gujarat Vij Company Limited, Corporate Office: Visnagar Road, Mehsana- 384 001

3) **Transmission Companies**

4) **Independent Power Producers**
   - Torrent Power Limited, Registered Office, Off Ashram Road, Ahmedabad - 380009, Gujarat, India.
5) **Umbrella Organization of Unbundled GEB**

Gujarat Urja Vikas Nigam Limited (This organisation is mainly for Power trading)

❖ **SAMPLE SIZE PER COMPANY**: One policy maker

❖ **EXPECTED NO. OF PEOPLE INVOLVED IN POLICY DECISION MAKING AND IMPLEMENTING**: CEO, HR Head (2)

❖ **AVERAGE LENGTH OF SERVICE**: Those who have completed minimum 3 years in the current post

### 3.9 RESPONDENT'S PROFILE

Majority of respondents have agreed to have witnessed the impact of reforms on the power sector companies. The respondents so selected were in the management cadres of the power sector companies. They have been selected from 9 companies namely Essar power, Torrent power, Gujarat Industries Power Corporation Ltd, MGVCL, PGVCL, DGVCL, UGVCL, GETCO, GSEC out of 11 companies. They were among second in
command in the management. Majority of them were CE or Addl CE level in SEB led companies and Manager/GM/VP level in IPPs. The remaining gap filler information has been collected by telephonic interviews with either CEOs or MDs or EDs of the corporatized companies of SEB or IPPS for the support of the questionnaire. And as per the requirement, this also has been converted into expert opinion with appropriate references.

All the respondents have identified the strategic issues and their impact on the power sector and their own organization in preferred manner. Majority were of the opinion that these challenges have been corresponded by appropriate strategic leadership. This has set the stage for strategic leadership for the future growth of the power sector. Gearing up to the change and initiating the implications for power sector companies.

Procedure

All the respondents were contacted in their respective organizations during the working hours. First, they were explained the purpose of the study and convinced that their own names and the names of the organizations would not be disclosed and only the aggregate data would be used for the academic research. They were asked to fill the questionnaire with full honesty and correct information. In some cases if the respondents did not have handy information available they were requested to contact the concerned executive/department/section, get
information and then answer. After that, wherever the researcher felt necessary, interviews were conducted with the respondents for in-depth analysis.

3.10 DATA ANALYSIS
This phase included processing, coding, tabulation and analysis of data. As the questionnaire was not pre-coded, first the coding of the questionnaire was done. For analysis all the numerical variables were given names and the data was fed into Excel sheet.

3.11 METHODS OF DATA PROCESSING
Appropriate statistical techniques like frequency distribution, factor analysis, correlation analysis, weighted average etc. were used to analyze the collected data.

3.12 TOOLS USED FOR DATA ANALYSIS
A brief explanation of the tools and techniques used for analyzing the data is given under:

Mean
It is a central tendency measure representing the arithmetic average of a set of observations. The study uses Mean to describe the sample. More specifically, it is possible to get a broad picture of the sample by considering mean score of each of the variable.
3.13 LIMITATIONS OF THE STUDY

The present study has several limitations:

Though the sample size is of 11 organizations, it includes all organizations and covers all existing companies which makes it a study of the entire universe.

The study was undertaken in the organizations in Gujarat, therefore only the environment of one state was taken into consideration. If the findings have to be generalized in other states/regions, then the environment in those areas would also have to be taken into consideration. Hence interstate comparison cannot directly be made.

Although utmost care has been taken to counter the biases of all respondents including those of the top management of the respective organizations, some biases are likely to affect the study.

There is a lack of evenness in the data collected, as only three companies were from private sector. This limitation was due to the fact that private sector consisted of only 3 private power sector companies. Therefore, a comparison between different sectors could not be done.

The time frame for data collection was between 2002 to 2008 February.
3.14 CHAPTER SUMMARY

The study uses questionnaires, survey method plus interviews for collecting the data. The responses were collected from both private and government organizations. Based on the literature on power sector, a list of parameters to be studied was developed. The researcher himself went to the organizations and got the questionnaire filled in his presence. Moreover, during the interview some deep probing questions were also asked for better understanding. Secondary data about the responding organizations was collected from various sources. For analyzing the survey, data measures like mean and frequency have been used.

Since the study is based on exploratory cum descriptive aspects of the power sector, no specific hypothesis which could be empirically tested, have not been formulated. Instead the entire focus is concentrated on knowing the extent to which the specific objectives have been realized.

Questionnaire consists of seven aspects. What respondents feel about is the main focus. The specific contents included under each of the seven aspects of the questionnaire were required to be related by the respondents using scale provided for the purpose. And therefore, reliability in the sense of consistency of responses is not required.